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Birth of a Community Mental Health Clinic

By Edward Davens, M.D., and Paul Lemkau, M. D.*

In view of the current widespread interest throughout the country in establishing community mental health clinics, a circumstance in which the National Mental Health Act of 1946 is playing a significant, stimulating role, a detailed account of the preliminary community organization and planning preceding the opening of the Prince Georges County Mental Health Clinic might be useful.

When it became evident that Federal funds would become available to State mental health authorities to "develop adequate mental health programs, particularly in the fields of early prevention and treatment," Maryland, at the legislative session of 1947, enacted a bill providing for a mental health program to be administrated and supervised by the State Board of Health. The State Board of Health then ordered that a division of mental hygiene be established in the State Department of Health.

From the beginning the new division, in endeavoring to develop mental health facilities, has assumed that mental hygiene will take its place in preventive medicine along with all the other functions of a well-organized, comprehensive public health program and that the clinics will be held under general arrangements with the county health officer who will determine the location, the necessity and extent of service, and act as the liaison between community and clinic. It is expected that the clinics will be centers of in-service training in the health department so that the principles of mental hygiene will be used in all the services of the department eventually, from the prenatal program to the hospitals for the chronically ill.

At the outset the amount of money available for establishing community facilities for the early diagnosis, prevention and treatment of all types of emotional disorders was limited. When confronted with widespread and urgent need for a new service on the one hand, and insufficient funds and professional personnel on the other, the problem of how and where to start is always a difficult one.

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However, it was known that the Division of Mental Hygiene of the Federal Public Health Service was interested in establishing a project which would demonstrate the role of mental health clinic services as a part of a total public health program. State mental health authorities had been designated by most of the States after the National Mental Health Act was passed, but only a few of these departments had a mental health program in operation at that time.

Prince Georges County appeared to be a desirable location for such a project because its population of 150,000 is distributed in both urban centers and in rural areas, and it has a full-time county health department. But, in large part, the county selected itself as the location for a mental health clinic by the volume of prompt, vociferous and intelligent pledges of community support which stemmed from informal preliminary inquiry as to the local need and desire for such services.

Enumerated are the more important events in establishing the community mental health clinic in Prince Georges County, Md. The period covered starts with the first suggestions to county organizations in June 1947 and ends with the opening of the clinic doors January 19, 1948.

Initial Steps

On June 27, 1947, the acting chief, division of mental hygiene in the State Health Department wrote to the county health officer suggesting the possibility of starting a mental health clinic in Prince Georges County and further suggesting that a small meeting of interested citizens be called to explore the matter.

This resulted in a conference at the county office building on July 3 attended by the president of the County Medical Society, the chairman of the planning council of the Community Chest, the superintendent of education, the county health officer, the associate professor of clinical psychology at the University of Maryland (located in the county), the associate professor of public health administration at the Johns Hopkins University School of Hygiene and Public Health, and the acting chief, division of mental hygiene, State Department of Health. At this meeting the county health officer was instructed to call a larger meeting of representatives of additional organizations for the purpose of finding out how wide and solid a community backing could be mobilized.

The second meeting was held on July 11, 1947, and was well attended. In addition to those who were at the first meeting, the following organizations had representatives present: The County Welfare Board, Juvenile Court, League of Women Voters, Parent-Teacher Associations, Association of University Women, County Social Service League, Catholic Charities, Family Services (Green-

belt) and additional staff members from county departments such as the supervisor of school attendance, the supervisor of public health nurses, and so on. The president of the University of Maryland came to this meeting and gave his enthusiastic endorsement and an offer of support in the very tangible form of a home for the proposed clinic on the campus of the university.

The health officer recalled sporadic attempts to establish mental hygiene clinics in the past and pointed out that for 6 years the county had been without any facility of this kind. The visitors from the State Health Department and the Johns Hopkins School of Hygiene then described in detail the organization, scope of services, and source of referrals of the proposed clinic and outlined the following essential prerequisites: First, community interest and enthusiasm resulting in widespread support of the clinic by all agencies and individuals; second, a satisfactory place for the clinic to operate, preferably in a dwelling or residence rather than in an office or public building; third, an active mental hygiene committee or society to sponsor the mental hygiene clinic on a lay level in the county.

Before adjournment, the group formed the interim committee for mental hygiene, and one of the representatives of the Community Chest, an able and active civic leader, was elected chairman and was empowered to appoint his own executive committee to work on public relations and publicity for the clinic. It was further decided that the committee would be responsible for expressions of opinions from their own organization to be embodied in a letter to the Director of Health, Maryland State Department of Health, with a copy to the county health officer. Steps were also taken to get similar action from other organizations and from individuals.

Meanwhile a mental hygiene committee of the County Medical Society had been appointed and met on several occasions with the chairman of the interim committee, representatives of the State Health Department, and the adviser from the Johns Hopkins School of Hygiene. These meetings resulted in an invitation to present the mental hygiene proposal to the County Medical Society at a special meeting August 19. On the latter occasion the president of the society and the chairman of the society's mental hygiene committee gave a clear and comprehensive picture of the need for such services, and the scope and functioning of the proposed clinic. The guests from the State Health Department and School of Hygiene amplified these remarks and answered questions. The society then unanimously passed a resolution to give its enthusiastic and complete support to the project and instructed the president to write a letter indicating this to the State Director of Health.

The Response

Some idea of the vigor, earnestness, and widespread community support for mental hygiene clinics can be drawn from the response. A few excerpts from the letters [1] will illustrate:

FROM THE PRESIDENT, COUNTY MEDICAL SOCIETY:

"The Medical Society feels that the county with its population of 150,000, situated as it is between Baltimore and the District of Columbia, offers an excellent opportunity in every respect to demonstrate the effectiveness of such a clinic where no similar facilities exist.

"Moreover, the presence of the University of Maryland with its Department of Psychology, its speech correction clinics and its reading clinics offers further advantages. Here would be an opportunity to train clinical psychologists and to augment the staff of such a clinic with graduate students from the university.

"As a result of the discussion, the Medical Society has gone on record as wholeheartedly endorsing the establishment of a mental hygiene clinic in Prince Georges County, and will support such a clinic."

FROM THE COUNTY SUPERINTENDENT OF EDUCATION:

"I know of no greater need for anything in Prince Georges County than for a mental hygiene clinic which could cooperate with various public and private agencies in helping to solve the many problems that come to our attention. The public schools alone could provide 75 to 100 cases annually.

"We have recently increased our staff to include three visiting teachers working with a supervisor of pupil personnel, and we also have a supervisor of health education. It seems that the more we do in improving this type of service in our department, the more we recognize the need for a mental hygiene clinic."

FROM THE COUNTY HEALTH OFFICER:

"In our home visits by the public health nurses, many problems arise that would be benefited in a large measure by the availability of mental hygiene clinic services. Many of the public health diseases are accompanied by mental maladjustments, especially tuberculosis and venereal disease.

"In the schools, the nurses are often asked by the teachers where they can refer children with severe behavior problems, and we have been, in the past 6 years, at a total loss to give an adequate answer."

FROM THE AMERICAN ASSOCIATION UNIVERSITY WOMEN (COLLEGE PARK BRANCH):

"Our organization is aware of the fact that this county has been without such clinic service for 6 years, and that preventive work done

[1] All letters were sent to the State Director of Health with copies to the county health officer.

by a properly staffed clinic will rehabilitate scores of individuals who otherwise could be a burden on the county . . . We feel that the referral agencies—the schools, the social agencies, the juvenile court, and others—will derive great benefit from a mental hygiene clinic."

FROM THE PRINCE GEORGES COUNTY LEAGUE OF WOMEN VOTERS:

"The rapid population growth of the county has focused public attention on so many other needs that it has both delayed provision of mental hygiene clinics and aggravated the need for them . . . Teachers and truant officers testify that proper advice in mental hygiene for both pupils and parents undoubtedly would eliminate much of their disciplinary work, and prevent a large proportion of juvenile cases from reaching the courts. Social workers also tell us that many broken homes in which they work could be saved or repaired with the help of mental hygiene services."

FROM THE PRINCE GEORGES COUNTY PARENT-TEACHER ASSOCIATIONS:

"We wish to urge you to do everything possible to locate the mental hygiene clinic in our county. We are willing to cooperate with your staff to the fullest extent. Our council is composed of 32 local units with a total membership of 6,455 and we are in a position to help marshal public opinion in support of this experiment."

FROM THE COMMUNITY CHEST AND PLANNING COUNCIL:

"For some time we have seen the difficulty encountered by social service agencies in obtaining necessary advice and consultation for adults and children with varying degrees of maladjustment, emotionally or mentally. We have not had mental hygiene resources in our county for about 6 years, and it is quite a struggle to get appointments in greatly overloaded clinics in Washington and Baltimore . . . Needless to say, I feel there is ample and energetic popular support in the county for such a project."

FROM THE UNIVERSITY OF MARYLAND, DEPARTMENT OF PSYCHOLOGY:

"May I take this way of expressing the interest of this department in offering our support to the attempt to obtain a mental hygiene clinic for Prince Georges County. As you may know, with the support of the president we have developed a strong university advisement center and are adding to our staff in the field of clinical psychology. Our work leads us to recognize the genuine need for a mental hygiene clinic in this immediate area. You may count on the staff of this department to cooperate with you in any attempt to establish such a clinic and to support it professionally thereafter."

FROM THE JUVENILE COURT:

"The board of directors for the newly established Juvenile Court in Prince Georges County had its first meeting July 18, 1947. One of

the matters considered at this time is the need of a mental hygiene clinic to round out and complete the services to children which the court will initiate and work through."

FROM THE COUNTY WELFARE BOARD:

"The Prince Georges County Welfare Board has very much felt the need for a mental hygiene clinic for a great many years. We believe that, to a degree, the lack of such a clinic has definitely limited the helpfulness of our service to a large group of people."

FROM THE CATHOLIC CHARITIES:

"Our agency has been forced to use the clinics in Baltimore and Washington for our most urgent cases and has been unable to give the needed service to many other families faced with problems needing psychiatric treatment. We hope that a full-time mental health clinic will be established in Prince Georges County through the appropriations made available under the National Mental Health Act."

FROM A NEGRO COMMUNITY:

"At a regular meeting of the town council of North Brentwood, a Negro incorporated municipality, I was appointed to conduct the correspondence with the mental hygiene committee relative to the establishment of a mental hygiene clinic in the health department. We are wholeheartedly in favor of such a clinic and will help to support it, morally and financially."

Following the expressions of community support, the Director of the State Health Department, acting with the Chief, Division of Mental Hygiene of the Federal Public Health Service, chose this county as the location for a full-time demonstration clinic.

With the help of the president of the University of Maryland, quarters for the clinic with adequate space and suitable arrangement were made available on the campus of the university which is located in the population center of the county.

Meanwhile the Public Health Service had recruited the clinic personnel—a psychiatrist, psychologist, two psychiatric social workers, a public health nurse, and clerical staff.

The chairman of the mental hygiene interim committee requested his executive committee to draw up a proposed constitution and by-laws for the advisory board of the clinic, and worked on plans for a large open meeting of elected representatives of all organizations or groups of any type in the county. Wide publicity was given to this open meeting which was held February 25, 1948, at the University of Maryland with official representatives of some 100 organizations or groups and about 200 other interested individuals present. The agenda included talks on the purpose and objectives of the clinic;

adoption of the proposed constitution; election of the advisory board to the clinic, and discussion.

After discussion from the floor a few changes were made and the constitution [2] to govern the advisory board of the clinic was adopted, following which the nominating committee, appointed by the chairman of the interim committee, presented a panel of 12 names in accordance with procedures outlined in the constitution. The first board was then elected at this widely representative open meeting. The wide scope of community representation can be appreciated by examination of the initial membership which included (1) the chairman of the Mental Hygiene Committee of the County Medical Society, (2) the chairman of the Planning Council of the Community Chest, (3) the County Superintendent of Schools, (4) the County Health Officer, (5) the Juvenile Court Judge, (6) the chairman of the Mental Hygiene Committee of the Parent-Teacher Association, (7) member of the faculty of the University of Maryland, (8) representative of the County Federation of Women's Clubs, (9) representative of Service Clubs, (10) representative of the Negro population, (11) representative of Catholic Churches, and (12) president, County Ministerial Association.

A few days after the clinic was formally opened January 19, 1948, appointments had been made 2 weeks ahead. The acceptance by the public of this type of service was indicated by the fact that more than half of the cases were self-referred.

Few people in the county are uninformed about this clinic and a great many know they had a real part in its organization. The processes of its evolution precluded any notions that only certain types of cases or certain groups would be served. From the start, the Prince Georges Clinic was truly an all-purpose mental hygiene clinic and has already demonstrated conclusively that mental health problems are a direct concern of all groups and each individual in the community.

CONSTITUTION

Advisory Board, Prince Georges County Mental Health Clinic

ARTICLE I

NAME

Section 1. The name of this organization shall be the Advisory Board of the Prince Georges County Mental Health Clinic, hereinafter referred to as the Board.

ARTICLE II

PURPOSE AND OBJECTS

Section 1. The purpose and objects of this Board shall be:

[2] This constitution is reprinted at end of article.

To provide a vitally interested advisory group with wide community representation for the Prince Georges County Mental Health Clinic.

To advise the Director of the Prince Georges County Mental Health Clinic in matters of policy relating to community relationships.

To assist in promoting active cooperation with the clinic of all community agencies having allied interests in planning the over-all mental health program of the county, and more specifically in carrying out, when indicated, plans for modification of the clinic patient's environment.

To insure that the clinic remains a truly community-wide enterprise and does not become unduly influenced by any special group.

Section 2. The purpose and objects of the Prince Georges County Mental Health Clinic shall be:

To provide an all-purpose community mental health clinic as a part of the public health services of the County Health Department.

To serve the community by providing out-patient treatment for personality and behavior disorders of patients not in need of hospitalization and, most significant, for patients in the early stage of illness when the prospect for cure is greatest.

To serve the schools in helping solve the varied mental and emotional problems of children especially in the areas of behavior disorders, mental retardation, and school attendance.

To serve the social agencies particularly in helping solve the emotional problems of children in broken homes or foster homes.

To serve the courts by providing consultative service at the request of the judge of the court.

To serve physicians by providing consultation service for patients presenting mental or emotional problems, if such consultation is not available from psychiatrists in private practice.

To serve the mental hospitals by helping provide prehospitalization service and by referring those in need of institutional care to the hospital; by helping provide supervision and followup treatment of boarded-out patients, and of provisional discharge of convalescent post-hospitalization cases.

To provide mental health education including dissemination of information about mental health principles and practices, active case-finding programs, and the study and control of mental diseases from a public health standpoint. Understanding that the clinic cannot do this job alone, to coordinate its educational activities with those of the school, the health department, and other community agencies.

ARTICLE III

MEMBERSHIP OF BOARD

Section 1. The Director of the clinic and 12 elected members shall constitute the Board. Six of the elected members shall represent the following: (1) County medical society; (2) county department of education; (3) courts; (4) community chest; (5) parent-teacher associations; (6) county health department. The remaining six members shall be elected at large from other community groups especially interested in mental health as the churches, women's clubs, fraternal orders, university, and others.

Section 2. Tenure of office—Four of the elected members elected at the first meeting shall serve for 3 years; four shall serve for 2 years; and the remaining four shall serve for 1 year. Thereafter the procedure shall be as follows: At each annual meeting to elect four members for 3 years. No member should serve more than three consecutive years. In case of vacancy, a member shall be elected at the next annual meeting to fill the unexpired term. The term of newly elected officers shall begin at the end of the meeting at which they were elected.

ARTICLE IV

OFFICERS OF BOARD

Section 1. The officers of the Board shall be chairman, vice chairman, and executive secretary, elected by the members of the Board.

Section 2. The chairman shall preside at all meetings.

Section 3. The vice chairman in the absence of the chairman shall act as presiding officer, or in the event of vacancy in the office of chairman, he shall assume the duties of chairman until the Board elects a new chairman.

Section 4. The executive secretary to the Board shall be the director of the Prince Georges County Mental Health Clinic. He shall keep lists of members; notify the membership of meetings; take care of records and correspondence; perform all secretarial duties for the Board; and collaborate with the chairman on preparing the agenda for meetings.

Section 5. Tenure of office—The chairman and vice chairman will be elected from the membership of the Board once a year. The Director of the clinic will be the permanent executive secretary of the Board.

ARTICLE V

ELECTION OF BOARD

Section 1. Members of the Board will be elected at an open meeting of a committee-at-large. This committee-at-large will be composed of a representative appointed annually by each organization or group within the county interested in mental health activities.

Section 2. The chairman of the Board will appoint a nominating committee of three members to present a panel of nominees to fill the vacancies on the Board. The Nominating Committee shall obtain in writing from each of the six organizations specified in article III, the name of the nominee to represent them on the Board, and will then choose an additional list of six nominees, no two of which shall be from the same community group.

ARTICLE VI

VOTING OF THE BOARD

Section 1. Quorum—A quorum for any meeting of the Board shall consist of of not less than a majority of the members. When less than a quorum is present, any motion under consideration must be submitted to the absent members by the executive secretary to be voted upon by mail.

Section 2. Voting—A majority shall determine all questions except those pertaining to constitutional amendments as provided for in article VII.

Section 3. Executive secretary shall have no vote.

ARTICLE VII

AMENDMENTS

Section 1. The constitution of the Board may be amended by a two-thirds vote of the members of the committee-at-large at an open meeting, provided the notice of the proposed amendment has been given in writing to the executive secretary and transmitted by him to all members not less than 30 days prior to the meeting.

ARTICLE VIII

MEETINGS

Section 1. The Board shall meet once a month. Special meetings may be called at the discretion of the chairman, or on written application of any four members.

Section 2. The Board shall call a meeting of the committee-at-large annually in February for the purpose of electing new Board members.

ARTICLE IX

BYLAWS

Section 1. The Board may adopt or amend bylaws in accordance with this constitution by a majority vote of members present.

Effects of DDT Dusting on Domestic Rats Under Colony and Field Conditions

By JACK E. DENT, HARVEY B. MORLAN, B. S., and ELMER L. HILL, M. D.*

After reports from the field and direct observations indicating that mice and rats were being killed on premises where a dust consisting of 10 percent DDT in pyrophyllite was being distributed for typhus control, closer observations were undertaken to study these side effects.

The work of Lillie, Smith, and Stohlman (*1, 2, 3*) demonstrated a characteristic histopathology and showed that DDT (2,2 Bis-para-chlorophenyl–1,1,1 Trichlorethane) or its derivative, DDA (P, p′= dichlorophenyl-acetic acid), could be recovered from rats which had received known dosages of DDT. The current study was undertaken to determine the extent of DDT toxicity in a rat colony under simulated field conditions and in the field where normal DDT dusting operations were conducted.

Description of the Colony

A surplus concrete block building with a concrete floor measuring 20 by 100 feet was prepared for this study by ratproofing its two outside doors, 26 windows, and wall-ceiling junctures. Ten harborage boxes 12 by 12 by 8 inches were provided. Seven of these, with glass tops, were placed on the floor near the wall; two boxes were elevated on 4-foot legs and one was suspended from a wooden rack by a broom handle so that it could swing free about 4 feet above the floor. Rats were able to locate additional harborage in the structural features of two temporary rooms, each measuring about 10 by 12 feet. Tele-

*Typhus control specialist, S. A. sanitarian (R) (entomologist), and surgeon, respectively, Epidemiology Division. Typhus Investigations (Thomasville, Ga.), Communicable Disease Center, Atlanta, Ga. Cooperating in the study was the Georgia Department of Public Health, C. D. Bowdoin, M. D., Director, Division of Preventable Diseases; Roy J. Boston, Director, Typhus Control Service.

phone wire and one-half inch electric cable were suspended at about a 6-foot height the length of the building. Rags, paper and corn husks were provided for nesting material. A permanent watering station in the form of a sheet metal pan 30 by 36 by 1½ inches was located near one of the doors. Grains, carrots, cabbage, various other vegetables and meat scraps were placed in the center of the floor for ready observation from both doors and most windows. Electric lights were allowed to burn for night observation.

From November 22, 1946, to February 27, 1947, 119 rats (*Rattus rattus*) were introduced into the building. These rats were caught by hand to avoid trap injuries; however, even this procedure was not totally lacking in trauma. Each rat was weighed, measured, sex determined when possible, and identified with aluminum ear tags. These tags had been torn out by the rats prior to the time of treating the colony, thereby making it impossible to follow individual rats throughout the study.

Six rats died while the colony was being stocked (November 22, 1946, to February 27, 1947). No deaths occurred between February 27 and March 7, 1947. Between 8 and 9:30 a. m. on March 7, 1947, the colony rats were chased from one end of the building to the other. Two counts taken at this time indicated that there were 113 rats surviving (43 males, 50 females, and 20 which were too young for determination of sex on superficial examination). All of the rats were active except for one with a broken hind leg. This injured rat was in good condition on May 24, 1947.

DDT Treatment of Colony

During the morning of March 7, 1947, 4.77 kilograms (10.5 pounds) of 10 percent DDT in pyrophyllite were distributed on the floor in patches and bands about 2 millimeters in depth. The water and feeding areas were encircled by a band approximately 30 centimeters wide and about the same distance removed from food and water sources. DDT dust was distributed in patches along the walls and elsewhere so that the more commonly used rat runs crossed one or more of these patches which extended about 30 centimeters from the wall.

Colony Observations and Results

The rats remained in hiding until about 5 p. m. On first encountering dust patches, rats were observed to stop abruptly and go around them whenever possible. By about 6 p. m., rats had become accustomed to the unusual dust patches and had crossed the band of dust in order to obtain food and water.

By the following morning, it was noted that every dust patch had been scattered and the more heavily used runs swept clear. Dust had

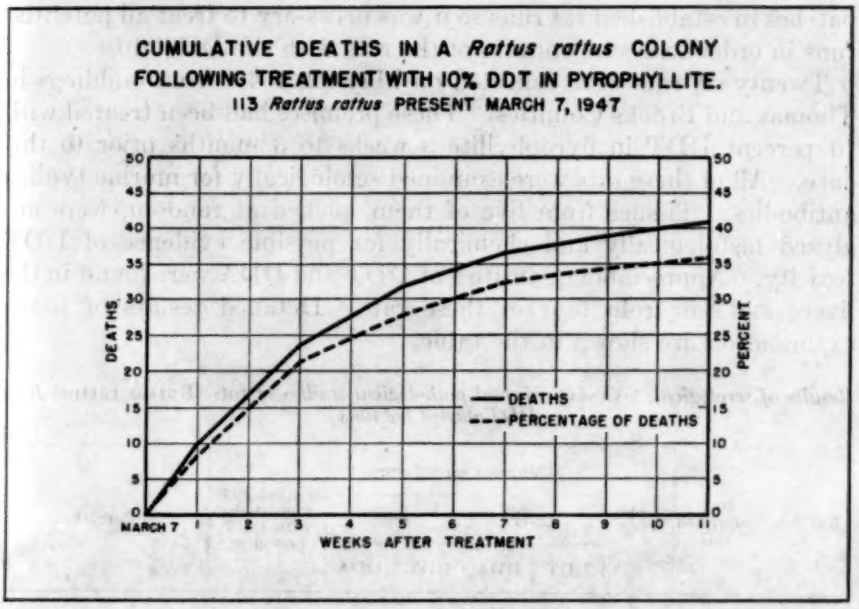
been carried into the drinking pan as well as scattered throughout the feeding area. Rats were observed dragging food through patches of DDT. By this means and by the act of licking their fur in the preening process, rats undoubtedly acquired considerable oral dosage of DDT. Later autopsy observations suggested that DDT dust had also been inhaled.

For the first 4 days after treatment, the DDT dust was swept back into the original patterns once in every 24 hours. The colony was under nearly continuous observation day and night for the first 2 weeks after dusting except for the hours between midnight and 7 a. m. Thereafter, frequent observations were made until May 26, 1947.

Rat runs and swings under beams had previously been black but began to assume a grayish appearance due to the widespread distribution of dust by the rats. The electric cable and 2-strand telephone wire also showed evidence of dust-dispersal by rats.

Prior to dusting operations rats were observed climbing up a three-eighths-inch glass tube to a height of about 2 feet; there were tracks indicating that they had climbed the glass tube to its top where it was held upright by being fastened to a telephone wire suspended 6 feet above the floor. At the time of treating the colony, this tube had been thoroughly cleaned; thereafter, there was no indication that rats succeeded in climbing higher than 1 foot. On the night of March 9, 1947, one of the smaller rats was observed to be quite weak. Its tail was rigid and it was afflicted with a coarse tremor. Whereas this rat had previously been able to negotiate the various wires and beams, it was now unable to climb the side of the watering pan, which was only 1½ inches from the floor. Its hind legs seemed to be partially paralyzed. This same syndrome was noted in other rats in the colony during the ensuing weeks, and rats so afflicted were usually found dead within 24 hours. The agility of surviving rats seemed to be permanently reduced. Their speed, coordination, and ability to climb were noticeably diminished from previously observed levels. The incidence with which rats succumbed to DDT poisoning in the colony was about the same for old and young rats.

During the first week after DDT dusting in the colony, six rats were followed through the development of toxic symptoms, terminating fatally, and four were found in a moribund condition. These four rats and others subsequently found in a moribund condition were sacrificed. Blood was drawn for serological study and tissues were removed for microscopic and chemical analyses. Twenty-four rats had died or were sacrificed while in a moribund condition by the end of the third week; by the end of the fifth week this number had risen to 32 and by the end of the seventh week when the death rate seemed to be leveling off the total reached 37. This represented 32.7 percent of the rat popu-



lation present at the time the building was dusted with 10 percent DDT in pyrophyllite (see chart).

Two moribund rats were autopsied during the ninth week and one more for each of the tenth and eleventh weeks, making a total of 41 affected by acute DDT poisoning during the 11 weeks following dusting of the colony with DDT.

According to analytical data contained in the table, eight rats, which were judged to be so weak that they had little chance of survival for more than a few hours, were found to contain sufficient DDT and DDA in fat and liver to account for death.

Twelve apparently healthy rats were taken from the colony May 27 to 29. The livers and fat from six of these were analyzed for DDT and DDA. As may be noted in the table these tissues contained appreciable quantities of DDT and its derivative DDA.

Field Observations and Results

Five county-wide cycles of DDT dusting were completed in Thomas and Brooks Counties from April 1946 to September 1947 (*4*). Contrary to colony experience, the majority of dead rats found following dusting operations were small rats. It seems possible that death among the larger rats was not noticed because of their greater caution in remaining in well-secluded harborages. Occasional rats were seen to be suffering from tremors and a lack of coordination similar to that described for colony rats. When possible, wild rats avoided dust

patches in established rat runs so it was necessary to treat all potential runs in order to assure contact of the rats with the DDT dust.

Twenty-six rats were collected on May 22, 1947, from buildings in Thomas and Brooks Counties. These premises had been treated with 10 percent DDT in pyrophyllite 3 weeks to 3 months prior to this date. All of these rats were examined serologically for murine typhus antibodies. Tissues from five of them, picked at random, were analyzed histologically and chemically for possible evidence of DDT toxicity. Appreciable quantities of DDT and DDA were found in the livers and fat from four of these rats. Detailed results of tissue examination are shown in the table.

Results of serological, toxicological, and pathological studies of rats (Rattus rattus) *from DDT dusted habitats*

Rat No.	Date autopsied 1947	Typhus C–F	Milligrams per 100 grams [1]				Pathology [2] consistent with DDT poisoning	Remarks
			Liver		Fat			
			DDT	DDA	DDT	DDA		
S–2	Mar. 14	1:256	14.3	7.4	28.0	6.0	Yes [3]	Moribund rats from colony.
S–3	do	Neg.	25.0	11.9	50.3	3.9	Yes	
S–4	do	Neg.	22.3	13.7	111.3	18.6	Yes	
S–5	do	A. C.	6.5	.9	7.2	3.6	Yes	
S–6	Apr. 15	Neg.					Yes	
S–7	May 7	Neg.	Tr.		Tr.		Yes	
S–8	May 9	1:32	Tr.		Tr.		Yes	
S–9	May 15	Neg.	.6	.6	18.7	5.9	Yes	
S–10	May 19	1:32	1.2	.8	5.8	3.6	Yes	
S–37	May 27	1:16	2.2	1.0	2.0	23.1	Yes	Active rats from colony.
S–38	do	1:16	.5	.2	31.5	4.2	Yes	
S–39	do	1:16					Yes	
S–40	do	1:128	.8	.6	23.7	3.2	Yes	
S–41	May 28	1:32	.9	.4	<1.2	.8	Yes	
S–42	do	Neg.					Yes	
S–43	do	Neg.	.4	.2	<2.2	1.6	No	
S–44	do	Neg.	.4	.4	3.4	.4	Yes	
S–45	do	1:8					Yes	
S–46	May 29	Neg.					Yes	
S–47	do	1:32					Yes	
S–48	do	1:64					Yes	
S–16	May 22	Neg.	Tr.		Tr.		Yes	Active rats from premises in Brooks and Thomas Counties.
S–22	do	Neg.	1.1	.3	9.0	3.8	Doubtful	
S–28	do	Neg.	.4	.1	8.6	2.0	Yes	
S–30	do	Neg.	.8	.7	<2.8	<1.7	Yes	
S–34	do	Neg.	.7	Tr.	3.3	1.3	No	

[1] Chemical analyses by Division of Pharmacology, National Institutes of Health.
[2] Tissues examined by Division of Pathology, National Institutes of Health.
[3] The first four in this list were found on autopsy to have a diffuse inflammatory process in both lungs while most of the remainder showed evidence of patchy consolidation or atelectasis.

Six samples of 10 percent DDT dust, collected from premises that had last been dusted at various periods from 47 to 94 weeks previously, were analyzed for DDT by a modification of a method described by Schechter, Soloway,[1] Hayes, and Haller (*5*).[2] The percentage of technical DDT varied from 7.7 (collected 62 weeks after application) to 10.4 (collected 56 weeks after application).

[1] Analyses performed by Communicable Disease Center, Technical Development Division.

Summary

Data are presented, from a colony study and limited field collections of rats, which show that the distribution of 10 percent DDT in pyrophyllite in domestic rat habitats resulted in pathological changes consistent with DDT poisoning and in the accumulation of appreciable quantities of DDT and DDA in the livers and fat of exposed rats. These results indicated that DDT dusting for the control of diseases of domestic rodents not only decreased fleas significantly but also affected rodent populations directly. In the treated colony, 32.7 percent of the rat population apparently died from DDT poisoning within 7 weeks and 36.3 percent within 11 weeks after the colony habitat was dusted. General field observation indicated that such rates are in excess of those to be expected under field conditions where rats can exercise greater freedom in avoiding unfavorable situations.

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Avirulent Isolate of *Salmonella typhosa* 58 (Panama Carrier)

By H. C. Batson, Maurice Landy, and Arthur Abrams *

Since October 1936, the strain of *Salmonella typhosa* used by the U. S. Army Medical Department for the routine production of typhoid vaccine has been strain 58, also commonly known as the "Chronic Carrier" or "Panama Carrier" strain. This is a smooth, stable strain, highly virulent for mice, which was isolated from the feces of a chronic typhoid carrier [1] in Panama. The carrier, who had typhoid fever in 1913, has been under the continuous observation of the staff of the Board of Health Laboratory, Panama Canal Zone, since that

*Scientific director, and bacteriologists, respectively, Department of Biologic Products, Army Medical Department Research and Graduate School.
[1] Referred to in (*1*) as the "Carrier Boxhill".

time. Following his attack of typhoid, at least 115 positive cultures of *S. typhosa* had been isolated from him up to 1934 when a culture of this strain was received by the Army Medical School. Exhaustive studies on the morphology, biochemical activity, antigenic structure, mouse virulence and immunogenicity of this strain were conducted at the Army Medical School and have been reported in detail by Siler and his co-workers (*1*).

Periodically since 1936, cultures isolated from the carrier have been submitted to this laboratory for routine examination. Such an isolate, received in July 1948, was found morphologically, biochemically and antigenically similar to previous isolates from this individual except that it was essentially avirulent for mice. Previous and subsequent isolates from this carrier exhibited the usual high virulence for mice; the LD_{50} being less than 10 organisms suspended in 5 percent mucin.

It has been the common experience of laboratory workers that freshly isolated strains of *S. typhosa* from chronic carriers are highly virulent and, accordingly, the occurrence of an avirulent isolate must be rare. It is the consensus that vaccines produced from avirulent organisms are of inferior immunogenic quality. In view of the importance of strain 58 in production of typhoid vaccine by the U. S. Army Medical Department and by many public health and commercial laboratories in this country, a brief account of the salient features of this unusual isolate is reported.

Culture. An agar slant culture of *S. typhosa* strain 58, received from the Board of Health Laboratories, Panama Canal Zone, as the current isolate from the carrier July 9, 1948, was entered in the Army Medical Department Research and Graduate School culture museum records as culture 42–A–58V.

Morphology. Microscopically the organisms appeared as typical, short, actively motile, gram negative bacilli.

Colonial appearance. Colonies on nutrient agar plates appeared as slightly dome-shaped, smooth, glistening, round, entire and opaque grayish white.

Biochemical reactions. Acid but no gas was produced in dextrose, maltose, mannitol, xylose and sorbitol. No fermentation was observed in lactose, sucrose, arabinose, dulcitol, inositol, rhamnose or salicin. Methyl red, H_2S production and nitrate reduction tests were positive. Voges–Proskauer and indole production tests, gelatine liquefaction and citrate utilization tests were negative. Acid was produced in litmus milk.

Antigenic analysis. An "O" antigen suspension prepared by White's method (*2*) was agglutinated readily by a *Salmonella ballerup* antiserum indicating the presence of Vi antigen. No agglutination of this suspension was observed with single-factor IX or XII antisera. Agglutination with these antisera was obtained, however, following

heating of the suspension at 90° C. for 30 minutes. This heating reduced but did not destroy agglutinability with the *S. ballerup* antiserum (anti-Vi). In all cases, agglutination controls with saline and normal rabbit serum were negative. Broth cultures, although motile, failed to be agglutinated with single-factor "d" antiserum even after the culture had been subjected to serial passage through a semisolid medium.

Virulence tests. Comparisons were made of the virulence for mice of isolate 58V and of the standard strain 58. White Swiss mice, weighing 14–16 grams, were injected intraperitoneally with 0.5 ml. quantities of dilutions of 16-hour veal infusion broth cultures suspended both in 5 percent hog gastric mucin and in physiological saline. Each dilution preparation was tested in four groups of 5 mice each, two groups of females and two of males. All mice were selected and assigned at random and the groups were injected in random order. The results of these tests, in terms of the number of deaths in 72 hours at each dosage level, are presented in tables 1 and 2.

Table 1. *Mouse virulence of* S. typhosa *strains 58 and 58V administered in physiological saline*

Dose of organisms (in 0.5 ml.)	Strain of *S. typhosa*	
	58	58V
30, 000, 000	0/20*	0/20
90, 000, 000	5/20	0/20
270, 000, 000	6/20	0/20
810, 000, 000	20/20	0/20

Table 2. *Mouse virulence of* S. typhosa *strains 58 and 58V administered in 5 percent hog gastric mucin*

Dose of organisms (in 0.5 ml.)	Strain of *S. typhosa*	
	58	58V
5	13/20*	------
50	18/20	------
500	17/20	------
5, 000	19/20	------
30, 000	------	1/20
300, 000	------	3/20
3, 000, 000	------	8/20
30, 000, 000	------	20/20

*Numerators in tables 1 and 2 denote number of deaths in 72 hours; denominators, total mice injected.

Examination of the tabulated results reveals that, in contrast to the high degree of virulence exhibited by standard strain *S. typhosa* 58, isolate 58V was essentially avirulent. Administered in saline, a dosage of isolate 58V approaching a billion organisms failed to kill any mice. Administered in mucin, a dosage of isolate 58V in excess of 3,000,000 organisms was required to kill 50 percent of the mice. This was more than 600,000 times the dose (5 organisms) of standard strain 58 which produced the same mortality. Repeated attempts to detect virulence of isolate 58V following 6 to 10 transfers have been unsuccessful.

The occurrence of this avirulent isolate from a well-known typhoid carrier suggested an investigation of the relationship of virulence and immunogenicity through the use of vaccines prepared from these virulent and avirulent strains of common origin. These studies are now in progress.

Summary

The occurrence of an avirulent isolate of *S. typhosa* from the "Panama Carrier" is reported. Aside from the lack (or masking) of the "d" factor, this isolate differed from previous and subsequent isolates from this source only in its lack of virulence for mice.

REFERENCES

(*1*) Siler, J. F., and others: Immunization to Typhoid Fever. The Johns Hopkins Press, Baltimore, 1941.
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DEATHS DURING WEEK ENDED APR. 30, 1949

[From the Weekly Mortality Index, issued by the National Office of Vital Statistics]

	Week ended Apr. 30, 1949	Corresponding week, 1948
Data for 94 large cities of the United States:		
Total deaths	9,531	9,077
Median for 3 prior years	9,021	
Total deaths, first 17 weeks of year	166,421	169,914
Deaths under 1 year of age	662	687
Median for 3 prior years	687	
Deaths under 1 year of age, first 17 weeks of year	11,215	11,766
Data from industrial insurance companies:		
Policies in force	70,463,032	71,068,300
Number of death claims	14,126	12,406
Death claims per 1,000 policies in force, annual rate	10.5	9.1
Death claims per 1,000 policies, first 17 weeks of year, annual rate	9.7	10.4

INCIDENCE OF DISEASE

No health department, State or local, can effectively prevent or control disease without knowledge of when, where, and under what conditions cases are occurring

UNITED STATES

REPORTS FROM STATES FOR WEEK ENDED MAY 7, 1949

A total of 62 cases of poliomyelitis was reported for the current week, as compared with 68 last week, 107 last year, and a 5-year median of 26 cases for the corresponding week. (The 5-year average for the week is 41.) The largest number of cases (18) was reported in Texas (19 last week), and New York (7 cases, 2 last week) was the only other State which reported more than 5 cases. The total to date is 1,277, as compared with 669 for the same period last year (also the 5-year median), and the total since the average seasonal low point of the disease is 355 as compared with 321 for the same period last year and a 5-year median of 205.

The reported incidence of measles declined from 29,437 cases last week to 27,787 for the current week, which is only slightly above the median expectancy, 26,067. The total to date this year is 430,104, as compared with 334,940 for the corresponding period last year (also the 5-year median). The highest weekly incidence this year was for the week ended March 26, when 33,347 cases were reported.

The decline in the incidence of influenza continued, but it is of interest to note a late rise of the disease in Maine, where 501 cases were reported, as compared with 304 last week.

Two cases of anthrax were reported in Pennsylvania, bringing the total to date to 23, as compared with 26 for the same period last year. Seven cases of Rocky Mountain spotted fever were reported, 5 in the Mountain States, 2 in the South Central States; total to date 35, as compared with 22 for the same period last year. One case each of smallpox was reported in Kentucky and California. (Diagnoses of 2 cases previously reported in Mississippi have been changed to chickenpox, making the total cases to date 37, as compared with 44 for the same period last year.)

During the week 9,040 deaths were recorded in 94 large cities in the United States, as compared with 9,531 last week, 9,285 and 9,208, respectively, for the corresponding weeks of 1948 and 1947 (3-year median 9,208). Total deaths to date this year in these cities are 175,461, as compared with 179,199 for the corresponding period last year. Infant deaths in these cities for the current week are 652, as compared with 662 last week and a 3 year median of 660; total to date 11,867 as compared with 12,426 for the same period last year.

Telegraphic case reports from State health officers for week ended May 7, 1949

[Leaders indicate that no cases were reported]

Division and State	Diphtheria	Encephalitis, infectious	Influenza	Measles	Meningitis, meningococcal	Pneumonia	Poliomyelitis	Rocky Mountain spotted fever	Scarlet fever	Smallpox	Tularemia	Typhoid and paratyphoid fever *	Whooping cough	Rabies in animals
NEW ENGLAND														
Maine			501	289		10			25				35	
New Hampshire				187		3			7				3	
Vermont				173	2	4			5				3	
Massachusetts	9	1		590					169			2	68	
Rhode Island				89		5			[d] 9				8	
Connecticut	7			1,258	2	23	1		26			1	8	
MIDDLE ATLANTIC														
New York	5	2	(e)	2,859	7	253	7		[d] 160			1	160	7
New Jersey			5	2,162	1	45	5		99				43	1
Pennsylvania	6		(e)	2,344	5				200			1	112	2
EAST NORTH CENTRAL														
Ohio	3		4	1,334	5	61			217			16	55	12
Indiana	7	3		188		6			43				10	30
Illinois		1	4	209	6	79	1		75		1		68	7
Michigan *	4	1	3	893	2	24			277			1	26	7
Wisconsin		1	2	2,115		6			39				29	1
WEST NORTH CENTRAL														
Minnesota	1			167	1	4	2		35				1	
Iowa		1		61		5			15					6
Missouri	2		7	279		6			16		1	1	5	
North Dakota	1		1	27	1				4					
South Dakota	1			82		1	5		1			1		
Nebraska	2		15	217					3			1		
Kansas	1	1	1	741		28			11			1	6	
SOUTH ATLANTIC														
Delaware				42		3			3				2	
Maryland *	1	1		237	1	31			[d] 31				7	
District of Columbia				90		14			1				1	
Virginia	4		177	1,120	2	82			16			1	27	1
West Virginia			16	47		8			16				26	
North Carolina	7			942	1		2		8		1	1	12	
South Carolina	2		355	766	1	120			5		1	3	45	4
Georgia	3		26	374		140			2			3	8	12
Florida	4		4	158		16	1		9			1	4	
EAST SOUTH CENTRAL														

South Carolina	2		355	766	1	120			5		1	3	45	4
Georgia	3		26	374		140			2			3	8	12
Florida	4		4	158		16	1		9			1	4	
EAST SOUTH CENTRAL														
Kentucky	2			456	5				20	1		1	24	6
Tennessee	1		26	344	2	41			14			4	13	
Alabama	2		77	338	1	52	3		6				12	14
Mississippi [a]	2	1	8	49	1	12	2	1	2	(1)			17	
WEST SOUTH CENTRAL														
Arkansas	2		43	611	3	39	1	1			3	2	10	3
Louisiana			4	27		18			2		1		2	2
Oklahoma	2		20	458		18	2		4				4	1
Texas	14		648	1,971	8	230	18		41		1	6	86	15
MOUNTAIN														
Montana			3	161	2	11		3	6				7	
Idaho			13	238		4	1		13			1	1	
Wyoming				18		6		1	2		1			
Colorado	3			383	3	26		1	3			1	1	
New Mexico	1			203		2			5				7	
Arizona	3		31	182		18			12				12	
Utah [a]				112			4		7				26	
Nevada														
PACIFIC														
Washington			1	598	2	2			19				18	
Oregon			20	317	1	12	3		19				18	
California	4		8	1,281	1	23	4		[d] 68	1		2	55	1
Total	106	13	2,023	27,787	66	1,500	62	7	1,770	2	10	52	1,079	
Median, 1944–48	190	11	1,426	26,067	96		26	6	3,225	14	14	56	2,073	
Year to date, 18 weeks	2,875	151	67,420	430,104	1,517	40,799	1,277	35	47,882	[1] 37	446	774	18,040	
Median, 1944–48	4,821 (27th)	153	182,740 (30th)	334,940 (35th)	3,171 (37th)		669 (11th)	22	63,145 (32d)	189 (35th)	324	897 (11th)	38,450 (39th)	
Seasonal low week ends	July 10		July 31	Sept. 4	Sept. 18		Mar. 19		Aug. 14	Sept. 4		Mar. 19	Oct. 2	
Since seasonal low week	7,989		103,690	482,497	2,361		355		70,580	52		314	28,073	
Median, 1943–48 [b]	12,387		323,351	369,886	4,675		205		101,716	[1] 267		422	66,773	

[a] Period ended earlier than Saturday.
[b] The median of the 5 preceding corresponding periods; for poliomyelitis and typhoid fever the corresponding periods are 1944–45 to 1948–49, inclusive.
[c] New York City and Philadelphia only, respectively.
[d] Including cases reported as streptococcal infection and septic sore throat.
[e] Including paratyphoid fever; reported separately, as follows: Missouri, 1; South Carolina, 2; Georgia, 2; Tennessee, 1; Arkansas, 1; Texas, 1; Colorado, 1; California, 2; salmonella infection, not included, was reported as follows: New York, 1.
[1] Smallpox: Deducted, Mississippi, week ended Apr. 2, 1 case; week ended Apr. 9, 1 case. (Diagnoses changed to chickenpox.)

Anthrax: Pennsylvania, 2.
Alaska: Influenza, 1; measles, 5.
Territory of Hawaii: Measles, 151; poliomyelitis, 1.

PLAGUE INFECTION IN ARIZONA, NEW MEXICO, TEXAS, AND WASHINGTON

Under dates of April 28 and 29, and May 3, 1949, plague infection was reported proved in specimens of tissue and ectoparasites from rodents collected in Arizona, New Mexico, Texas, and Washington, as follows:

ARIZONA

Coconino County.—In a pool of 46 fleas from 14 white-footed meadow mice, *Peromyscus boylii*, trapped April 13, at a location 2 miles west of Parks, Ariz., on United States Highway No. 66.

NEW MEXICO

Guadalupe County.—In a pool of 50 fleas from 41 wood rats, *Neotoma albigula*, trapped April 21, and tissue from 1 rat (same species) found dead on April 20, all taken on a ranch approximately 4 miles west of Santa Rosa and 2 miles north of United States Highway No. 66; also in a pool of 9 fleas from 34 white-footed mice, *Peromyscus leucopus*, trapped April 21 in the same area.

Lincoln County.—In a pool of 135 fleas taken from 43 wood rats, *Neotoma albigula*, trapped April 8, along United States Highway No. 380, 2 miles east of Capitan; in a pool of 16 fleas from 25 white-footed mice, *Peromyscus boylii*, trapped April 7 on a ranch road at a point 3 miles north from United States Highway No. 380, 2 miles east of Capitan; in a pool of 64 fleas and in a pool of 50 lice from 34 wood rats, *Neotoma albigula*, trapped April 6, at a point on the same ranch road one-half mile north of United States Highway No. 380, 2 miles east of Capitan.

Socorro County.—In 2 fleas from 2 white-footed mice, *Peromyscus truei*, trapped April 9, at a location 10 miles west of Magdalena on United States Highway No. 60, then 9 miles south on New Mexico Highway No. 52; in tissue from 1 wood rat, *Neotoma albigula*, found dead in nest April 14, in Cibola National Forest, at a point 4 miles west on Water Canyon Road from United States Highway No. 60, 17 miles northwest of Socorro, and in a pool of 7 fleas from the nest of the above-mentioned rat; and in a pool of 3 fleas taken from 5 wood rats, *Neotoma albigula*, trapped April 16, in the same locality.

TEXAS

Cochran County.—In a pool of 52 fleas from 9 grasshopper mice, *Onychomys leucogaster*, taken April 6–8 at prairie dog colony approximately 27 miles north and 3 miles west of Plains; a pool of 6 fleas from 1 prairie dog, *Cynomys ludovicianus*, taken April 8; and a pool of 31 fleas from 2 wood rats, *Neotoma micropus*, collected April 5,

near the same location. (Plague infection was first reported in Cochran County in 1946.)

Dawson County.—A pool of 143 fleas from 18 wood rats, *Neotoma micropus*, taken April 8, approximately 5 miles south and 1 mile east of Cedar Lake oil camp.

WASHINGTON

Grant County.—A pool of 340 fleas from 118 short-tailed meadow mice, *Lagurus curtatus*, trapped April 8 at a location 4 miles west of Soap Lake; a pool of 47 fleas from 48 short-tailed meadow mice, *Lagurus curtatus*, 22 fleas from 41 white-footed mice, *Peromyscus maniculatus*, and a pool of 22 fleas from 28 meadow mice, *Microtus montanus*, all trapped April 12 at a location 3 miles northwest of Ephrata.

TERRITORIES AND POSSESSIONS

Panama Canal Zone

Notifiable diseases—February 1949.—During the month of February 1949 certain notifiable diseases were reported in the Panama Canal Zone and terminal cities as follows:

Disease	Residence [1]									
	Panama City		Colon		Canal Zone		Outside the Zone and terminal cities		Total	
	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths
Chickenpox	24		3		7		2	1	36	1
Diphtheria	3						2		5	
Dysentery:										
Amebic	7		1		1		1		10	
Bacillary					1		1		2	
Hepatitis, infectious			1		1		2		4	
Malaria [2]	5				4		93	1	102	1
Measles			1		1		2		4	
Meningitis, meningococcal	3				1				4	
Paratyphoid fever	1						1		2	
Pneumonia		6		3	7			2	[3] 7	11
Poliomyelitis	1								1	
Tetanus	1						1		2	
Tuberculosis		13		4	3			4	[3] 3	21
Typhoid fever							2		2	
Yaws	1						3		4	

[1] If place of infection is known, cases are so listed instead of by residence.
[2] 4 recurrent cases.
[3] Reported in the Canal Zone only.

FOREIGN REPORTS

CANADA

Provinces—Communicable diseases—Week ended April 16, 1949.—During the week ended April 16, 1949, cases of certain communicable diseases were reported by the Dominion Bureau of Statistics of Canada as follows:

Disease	Prince Edward Island	Nova Scotia	New Brunswick	Quebec	Ontario	Manitoba	Saskatchewan	Alberta	British Columbia	Total
Chickenpox		7	4	182	597	15	15	45	150	1,015
Diphtheria		1		6				2		9
German measles				349	31	1	114	15	7	517
Influenza		77		4	1	2				84
Measles		67	19	117	168	95	59	209	252	986
Meningitis, meningococcal				1					1	2
Mumps		15	5	115	282	18	9	11	57	512
Scarlet fever		4	1	85	73			18	10	191
Tuberculosis (all forms)		3	14	60	32	10	6	15	29	169
Typhoid and paratyphoid fever				3					3	6
Undulant fever					2	1				3
Venereal diseases:										
Gonorrhea	1	5	7	(1)	46	31	19	22	43	174
Syphilis		3	8	(1)	26	2	4	10	8	61
Other forms				(1)					1	1
Whooping cough		15		51	29				3	98

[1] Report for period not received.

NORWAY

Notifiable diseases—January 1949.—During the month of January 1949, cases of certain notifiable diseases were reported in Norway as follows:

Disease	Cases	Disease	Cases
Cerebrospinal meningitis	16	Mumps	765
Diphtheria	28	Paratyphoid fever	1
Dysentery, unspecified	2	Pneumonia (all forms)	4,523
Encephalitis, epidemic	2	Poliomyelitis	7
Erysipelas	349	Rheumatic fever	117
Gastroenteritis	2,313	Scabies	2,517
Gonorrhea	362	Scarlet fever	445
Hepatitis, epidemic	135	Syphilis	102
Impetigo contagiosa	2,386	Tuberculosis (all forms)	332
Influenza	17,231	Weil's disease	1
Laryngitis	17,212	Whooping cough	1,838
Measles	4,967		

WORLD DISTRIBUTION OF CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER

From consular reports, international health organizations, medical officers of the Public Health Service, and other sources. The reports contained in the following tables must not be considered as complete or final as regards either the list of countries included or the figures for the particular countries for which reports are given.

CHOLERA

(Cases)

NOTE.—Since many of the figures in the following tables are from weekly reports, the accumulated totals are for approximate dates.

Place	January–February 1949	March 1949	April 1949—week ended—				
			2	9	16	23	30
ASIA							
Burma	1	1	3		2		
Bassein		1	3		2		
India	21,017	6,922	[1] 1,694	[1] 1,318	[1] 849		
Allahabad		1				1	2
Bombay	[2] 1						
Calcutta	[2] 1,180	[2] 611	[2] 215	[2] 255	[2] 265	[2] 349	
Cawnpore		11	2	1	2	7	3
Cuddalore	1	1					
Lucknow					1		
Madras	9		2	3	4		2
Negapatam	15	4	5	1			
Tuticorin	13	1					
India (French):							
Karikal	59						
Pondicherry	100						
Indochina (French):							
Annam	33	17	3				
Cambodia	6	5	21				
Cochinchina		1		1	1		
Pakistan	7,317	1,382			13		10
Chittagong	40	2			2		10
Dacca					11		
Lahore	4	1					

[1] Preliminary figures. [2] Imported. [3] Includes imported cases.

PLAGUE

(Cases)

AFRICA							
Basutoland	8						
Belgian Congo	2	1		1			
Stanleyville Province	2	1		1			
British East Africa:							
Kenya	1						
Tanganyika	15						
Madagascar	39	9			[1] 5	[2] 4	
Tananarive	1						
Rhodesia, Northern	2						
Union of South Africa	26						
ASIA							
Burma	288	2		3		1	
Mandalay	1						
Moulmein				2			
Rangoon	1	1		1		1	
China:							
Chekiang Province	2	3		2			
Wenchow	2	3		2			
Kiangsi Province		9					
India	10,480	7,548	[2] 1,424	[2] 298	[2] 304		
Indochina (French)	17	13	5	8	4	2	
Annam			3	2	1		
Cambodia	9	8	2				
Cochinchina	4	2		6	3	2	2
Laos	3						
Java	2						
Siam	87	49	6	4			
EUROPE							
Portugal: Azores	2						

See footnotes at end of table

PLAGUE—Continued

Place	January–February 1949	March 1949	April 1949—week ended— 2	9	16	23	30
SOUTH AMERICA							
Peru:							
Lambayeque Department	4	1					
Piura Department		3					
Venezuela:							
Aragua State							1
OCEANIA							
Hawaii Territory [4]							

[1] Apr. 1–10, 1949. [2] Apr. 11–20, 1949. [3] Preliminary figures. [4] Plague infection has been reported in Hawaii Territory as follows: on Mar. 12, 1949, in a mass inoculation of 2 pools of tissue from 10 rats (8 and 2), taken on Maui Island; on Mar. 16, 1949, in mass inoculation of 3 pools of 29 fleas (7, 12, and 10) from rats trapped on the Island of Hawaii.

SMALLPOX

(Cases)

(P=present)

AFRICA							
Algeria	64	23	3				
Angola	118						
Belgian Congo	[1] 379	[1] 102					
British East Africa:							
Kenya	7		2			2	
Nyasaland	335	207	7	32	11		
Tanganyika	101	21					
Uganda	17						
Cameroon (French)	8	13			[2] 5		
Dahomey	115	43	37	14	3		
Egypt			[3] 2				
French Equatorial Africa		4			[2] 1		
French Guinea	1						
French West Africa:							
Haute Volta	10	33			[2] 1		
Gambia	1	4			[4] 35		
Ivory Coast	50	36					
Morocco	5	1					
Mozambique	42	11					
Nigeria	16	1,133					
Niger Territory	27	92					
Portuguese Guinea	1						
Rhodesia:							
Northern	4						
Southern	40						
Senegal	6	8			[2] 1		
Sierra Leone	43	22					
Sudan (Anglo-Egyptian)	23	5					
Sudan (French)	46	36			[2] 2		
Togo (French)	25	21			[2] 5	[3] 3	
Union of South Africa	104	P		P	P		
ASIA							
Arabia	14	15	[1] 1	1			
Bahrein Islands	[6] 32	4		3	1	4	1
Burma	372	105	17	6	8	13	3
China	405	188		[3] 40	[3] 20	11	
India	11,183	10,006	2,672	1,787	1,458	[7] 274	[7] 191
India (French)	1						
India (Portuguese)	69	55	12	11			
Indochina (French)	1,507	443	58	61	13	7	
Iran	136	20	1				
Iraq	209	33	2	1	3	9	3
Israel	2						
Japan	4	12	2	2	5		
Java	335	1,631	246	239	211	265	169
Korea	135						
Lebanon	109	3	7	1			
Malay States (Federated)	34	8					
Pakistan	1,220	265	[7] 7	[7] 2	[7] 2	[7] 1	[4] [7] 3
Philippine Islands:							
Mindoro Island	2						
Tablas Island			2				

See footnotes at end of table.

SMALLPOX—Continued

Place	January–February 1949	March 1949	April 1949—week ended— 2	9	16	23	30
ASIA—continued							
Portuguese Timor		2					
Siam	35	2					
Straits Settlements: **Singapore**		2					
Sumatra	27	[6] 9	3	7	1		2
Syria	182	39		27	3	5	
Transjordan	64	25	11	10	20	5	
Turkey. (See Turkey in Europe.)							
EUROPE							
Great Britain: England and Wales				[6] 5	[6] 6		
Italy	2						
Portugal: **Lisbon**	2	1					
Turkey	58	6	1				3
NORTH AMERICA							
Cuba: **Habana**		[6] 2					
Mexico	3	3	3				
SOUTH AMERICA							
Argentina							[9] 54
Brazil	[1] 50	1					
Colombia	257	31	5	6			
Ecuador	[1] 283	[1] 25					
Paraguay		[10] 1					
Peru	387						
Venezuela	[1] 233	[1] 120		1			

[1] Includes alastrim. [2] Apr. 1–10, 1949. [3] In Cairo. [4] In Bathurst, Feb. 5–Apr. 16, 1949. [5] Apr. 11–20, 1949. [6] Includes imported cases. [7] In cities only. [8] Imported. [9] Jan. 1–Apr. 30, 1949. [10] Alastrim.

TYPHUS FEVER*

(Cases)

(P = present)

AFRICA							
Algeria	20	7					
Basutoland	3						
Belgian Congo	[1] 16	[1] 10					
Egypt	27	38	40	5	3		
Eritrea	17	5					
Libya	33	32	6				
Madagascar: **Tananarive**	[2] 2						
Morocco	6	2		[3] 1			
Tunisia	6	14		[3] 22			
Union of South Africa	36	2	P	P	P		
ASIA							
Arabia: **Aden**		1					
Ceylon: **Colombo**	2						
China		2					
India	9	1					
India (Portuguese)	5			2			
Indochina (French)		1				1	
Iran	38	22	6				
Iraq	6	7		1	5		2
Japan	[3] 56	5	4	1	6		
Korea	23						
Lebanon	[1] 1						
Pakistan	6	209					
Palestine	100						
Philippine Islands: **Manila**	1						
Straits Settlements: **Singapore**	[4] 1						
Transjordan	5	6	17		9	4	1
Turkey. (See Turkey in Europe.)							
EUROPE							
Belgium		1					
Bulgaria	54	17	10				
Czechoslovakia	1	1		2	1		
France	1						
Great Britain: Island of Malta [1]	1			1			

See footnotes at end of table

TYPHUS FEVER—Continued

Place	January–February 1949	March 1949	April 1949—week ended— 2	9	16	23	30
EUROPE—continued							
Greece	19	2			1		
Hungary	5	7	2		1		
Italy	19	4					
Sicily	9						
Poland	69	79	1				
Portugal: Lisbon	1	1	2				
Rumania	220	77					
Spain	1						
Turkey	56	14	5	4	5	3	4
Yugoslavia	56	26					
NORTH AMERICA							
Costa Rica [1]	7	1	2	2			
Cuba [1]		1					
Jamaica [1]	2	3		1			
Mexico [2]	34		4	3			
Puerto Rico [1]	2						
SOUTH AMERICA							
Brazil	1	1					
Chile		35	6		4	9	
Colombia	305	31	8	8			
Curacao [1]	3						
Ecuador [3]	63	12			[4] 1		
Peru	2			2			
Venezuela [1]	4	3		1			
OCEANIA							
Australia [1]	19	13					
Hawaii Territory [1]	3						

*Reports from some areas are probably murine type, while others include both murine and louse-borne types.

[1] Murine type. [2] Apr. 1–10, 1949. [3] Corrected figure. [4] Type unspecified. [5] Includes murine type. [6] Apr. 1–15, 1949.

YELLOW FEVER

(C—cases; D—deaths)

AFRICA								
Belgian Congo:								
Stanleyville Province	D	4	1					
Nigeria:								
Lagos	C							[1] 2
NORTH AMERICA								
Panama:								
Pacora	C	[2] 8						
SOUTH AMERICA								
Brazil:								
Benjamin Constant, Amazonas State	D	1						
Cameta County, Para State			1					

[1] Cases admitted to Lagos Hospital from ship that arrived from two other ports in Nigeria—Warri and Burutu.

[2] Reported Jan. 15, 1949. Date of occurrence Nov. 11–Dec. 30, 1948. Five cases, all fatal, confirmed.